

THE MINERAL INDUSTRY OF FRANCE

By Harold R. Newman

France was a major European mineral producer and the world's sixth largest industrialized economy in terms of gross domestic product (GDP). France has a tradition of highly centralized administrative oversight of essentially a market-based economy. International pressures of globalization and more-direct pressure from the European Union (EU) were moving the trend away from governmental involvement in industry. The Government was working on a decentralization program that will transfer many Government responsibilities to the regions, departments, and cities. The Government revised the Constitution in March 2003 to authorize transfers of responsibilities to local authorities and to give them the legal means to carry out their new responsibilities. In accordance with EU requirements, the reduction of Government subsidies to support uneconomic mineral operations continued in 2003. Total general Government outlays amounted to almost 53% of the GDP, which was one of the highest percentages among the Organisation for Economic Co-Operation and Development countries (U.S. Commercial Service, 2004¹).

France had a population of more than 60 million in 2003 and has a land area of 545,630 square kilometers; this excluded overseas administrative divisions. In 2003, the GDP in purchasing power parity was \$1,615 billion, and per capita income in purchasing power parity was \$27,600. The inflation rate was 1.9%, and the unemployment rate was 9.5%. The country had reserves of foreign exchange and gold of \$71 billion (International Monetary Fund, 2004\$).

During the past 10 years, changing economic conditions, such as rising energy costs, increased imports of raw materials from other countries, lower prices owing to increased competition, and depletion of mineral reserves, have necessitated the closing of or reduced output from traditionally strong mineral extractive operations as bauxite, coal, iron ore, and uranium.

Government Policies and Programs

Considerable progress has been made in privatization through implementation of EU liberalization and deregulation directives. Reforms undertaken in France during the past two decades have helped the country's economic performance, but the Government has maintained a presence in such industries as aeronautics, automobile, defense, and telecommunications. Efforts were continuing to promote the private sector and to reduce the dependence of state-owned companies on subsidies.

Environmental Issues

The Ministère de l'Écologie et du Développement Durable (the Ministry of the Environment) was responsible for such key environmental issues agriculture runoff, air pollution from industrial and vehicle emissions, forest damage from acidic rain, and water pollution from urban wastes. The Government was committed to reducing toxic emissions and to adhering to regulations that concern transportation of hazardous materials. It has also been a consistent supporter of policies that protect wildlife, plant life, and other forms of biodiversity. The major natural hazards in France were avalanches and flooding (Country Watch, 2004\$).

France has been noted for using nuclear energy, which has resulted in less greenhouse gas. This use, however, has created other environmental concerns, such as disposal of nuclear waste. The country's lack of fossil fuel resources paradoxically has made France rely on cleaner energy sources. France announced an extensive 10-year plan to curb its carbon dioxide emissions to meet its commitments under the Kyoto Protocol—one of the first countries to do so (U.S. Energy Information Administration, 2004\$).

Production

Metal and mineral industries generally maintained production and other activities at about the same or slightly decreased levels compared with those of 2002 (table 1). Several industries have steadily undergone changes during the past few years; this was especially true for iron ore, which was no longer mined. Some bauxite waste dumps in the Languedoc region were reprocessed; the resulting product was used by cement companies to correct alumina and the iron content of cement.

The coal industry, along with other mineral producers, was affected by cheaper foreign sources, high operating costs, and the depletion of domestic resources. Coal mining was directed by the state-owned company Charbonnages de France (CdF). The uranium mining sector closed its last operation in 2003 owing to depletion of reserves.

Indices of production are listed in table 2.

Trade

In general, EU agreements and practices determine France's trade policies. Strong commercial relations continued between France and the United States, and Germany remained France's largest export destination. On the basis of quantity of exports and imports, France was the ninth largest trading partner of the United States worldwide and the third largest trading partner in Europe after the United Kingdom and Germany. France continued with economic expansion, although growth slowed in concert with other EU

¹References that include a section mark (§) are found in the Internet References Cited section.

countries. France, which accounted for more than 5% of the world's gross domestic product (GDP), had the sixth largest GDP after the United States, China, Japan, India, and Germany (Compare Infobase Ltd., 2004\$).

In 2002 (latest date for which data are available) export of goods and services was 27% of the GDP; import of goods and services was 25% of the GDP; and trade in goods as a share of the GDP was 46% (World Bank Group, 2004\$).

Structure of the Mineral Industry

Government and private companies explored for new domestic and international mineral resources, conducted research, and produced minerals and mineral products. Adjustment to the single European market resulted in mergers, closures of operations, and cooperative ventures as companies sought ways to obtain competitive advantages (table 3).

Commodity Review

Metals

Aluminum.—Alcan Inc. of Canada announced that it had secured 97.95% of the Pechiney Group of France total share capital as of December 30, 2003. At the time of acquisition, Pechiney represented about \$12 billion in annual revenue and about \$10 billion of asset value. Through the combination of the two companies, Alcan was expecting to realize annual cost savings and benefits of about \$360 million (Alcan Inc., 2004b\$).

Alcan acquired the remaining 65% stake in the Aluminium Dunkerque smelter, which was located in Dunkerque, France, from the smelter's financial partners at a cost of €280 million (\$330 million) (Alcan Inc., 2004a\$).

Pechiney closed its primary aluminum smelter at Auzat. The company said that the plant, which had a capacity of 50,000 metric tons per year (t/yr), was battling the problems of small size, old technology, and a remote location. Its location in the Pyrenees meant that it had higher transportation costs than other Pechiney plants in France. Another factor was the significant rise in power costs (Metal Bulletin, 2003c).

Ferroalloys.—Comilog International Inc. was to review the viability of the ferromanganese blast furnace at its Boulogne plant as part of an overall strategic review to restore profitability to its manganese and alloy divisions. The 350,000-t/yr furnace was operating at 70% of capacity, and production had not been stabilized. The plant was subjected to a rationalization program that closed one of the three furnaces and had another rebuilt and enlarged. The third operational furnace was to be closed for maintenance, and Comilog stated that it would be opened again only when conditions looked profitable to do so (Metal Bulletin, 2003a).

Gold.—Gold mining in Société des Mines du Bourneix's open pit and underground mining and ore-processing operations south of Limoges in the Saint Yrieix la Perche District ceased at yearend 2002. Site reclamation and plant dismantling operations ended in 2003. Mines d'Or de Salsigne's underground Salsigne Mine near Carcassonne, which had been closed since 2002, remained closed at yearend.

Iron and Steel.—Aceralia S.A. of Spain, Acieries Reunies de Burbach-Eich-Dudelang (ARBED) of Luxembourg, and the Usinor Group of France merged their businesses and specialties in 2002. The new company, Arcelor S.A., became the world's leading steel group displacing Nippon Steel Corp. of Japan. Arcelor focused its activities on flat carbon steel products, long carbon steel products, stainless steel products, and distribution, processing, and trading. In 2003, Arcelor produced 44 million metric tons (Mt) of steel, of which 19.8 Mt was produced in France (Hoovers, 2003\$).

Baoshan Iron and Steel Co. (Baosteel), which was China's leading steelmaker, entered into an agreement with Nippon Steel and Arcelor of France to build a \$787 million cold-rolled strip mill in Shanghai. Baosteel will have a 50% interest; Nippon, a 38% interest; and Arcelor, a 12% interest in the joint-venture mill. The mill will have a capacity of 1.7 Mt, of which 900,000 metric tons (t) would be cold-rolled sheets, and the rest, hot-dipped galvanized sheets. The sheets would be sold to automobile companies (State, The, 2003\$).

Lead and Zinc.—Métaleurop S.A. announced that it was withdrawing all future funding for its Métaleurop Nord's Noyelles-Godault plant. The decision came less than 6 months after the company announced that it would withdraw from primary zinc production. The Noyelles-Godault plant was scheduled to be converted into a zinc recycling plant until Métaleurop withdrew its funding. The Métaleurop Nord unit was placed in official receivership by the Béthune Court of First Instance. If the plant were to close, then some 800 workers would be affected. The plant produced 140,000 t of lead and 90,000 t of zinc. In 2001-02, the Métaleurop Nord unit accumulated losses of close to €100 million (\$130 million) (Metal Bulletin, 2003b).

Industrial Minerals

Cement.—Lafarge S.A. and Société des Ciment Français were the two leading producers of cement in France. Lafarge, which was founded in 1833, was first worldwide in cement and roofing, second worldwide in aggregates and concrete, and third worldwide in gypsum. Lafarge was a market leader in cement in France and worldwide (International Cement Review, 2003).

Gypsum.—France was one of Europe's leading producers of gypsum. Two-thirds of the production was from the Paris Basin. Of the companies that produced about 95% of the Basin output, S.A. de Matériel de Construction was the leading producer.

Potash.—Mines de Potasse d'Alsace S.A. (MDPA) was the only producer of potash in the Alsace-Haut-Rhin potassium basin until the last mine was closed in September 2002. Potash was no longer mined in France. MDPA was continuing with postmining

programs, which included disposing of property and remediation and enhancing the environment; these programs were expected to continue through 2009 (EMC Group, 2003§).

Mineral Fuels and Other Sources

France has few indigenous energy sources, only small amounts of coal, natural gas, and petroleum. The exploitation of these resources has steadily decreased during the past two decades, and nuclear power has dominated the energy supply sector. French energy policy has been relatively consistent with the main objectives of, for example, securing energy supply, achieving international competitiveness, and protecting the environment. The focus on energy security has led France to become one of the world's top producers and consumers of nuclear power.

Coal.—CdF was proceeding with further rationalizations that would result in reduced production and closure of mines. CdF closed two of the last three operating coal mines, the Gardanne and the Merlebach, in 2003. The La Houve coalfield was expected to be closed by yearend 2004, which will bring an end to coal production in France (U.S. Energy Information Administration, 2004§).

Natural Gas and Petroleum.—Because of its limited natural gas resources (15.9 billion cubic meters as of January 2004), France imported almost all the natural gas that it consumed. Natural gas consumption was estimated to be 45.3 billion cubic meters in 2002. Reliance on imports would most likely increase because the country's largest natural gas field, Lacq, was nearly depleted. The natural gas industry was run by Gaz de France (GdF), which was the state-held company with a monopoly on the importation and distribution of natural gas (U.S. Energy Information Administration, 2004§).

An international natural gas pipeline connection between France and Spain was being planned, construction was slated for completion by 2005. The proposal for the 30-kilometer 500-million-cubic-meters-per-year pipeline evolved from efforts by regulators in France, Portugal, and Spain to promote interconnections among the three countries and to develop a southern gas-trading hub needed to develop the liberalized European natural gas market. The only other natural gas link between France and Spain was the Lacq-Calahorra link over the Pyrenees Mountains (Oil & Gas Journal, 2003).

Nuclear Energy and Uranium.—Compagnie Générale des Matières Nucléaires (COGEMA), which was the state-owned uranium mining company, was the major producer of uranium. France was the world's leading nuclear power generator on a per capita basis and ranked second in total installed nuclear capacity after the United States. About 79% of electricity generated in France came from 58 nuclear powerplants. This has changed dramatically since 1973 when fossil fuels accounted for an estimated 65% of French gross power output.

Because a number of reactors will need to be shutdown between 2015-2020, France will face choices of replacing obsolete nuclear powerplants with more modern powerplants or beginning to phase out nuclear power generation (U.S. Energy Information Administration, 2004§).

Renewable Energy.—Hydroelectric power provided about 15% of France's electricity. Because this has little room for expansion, the remaining increase must come from wind power, which accounted for less than 0.5% of electricity generated. France was planning a major initiative for its wind power sector by inviting bids from companies to build thousands of wind turbines around France during the next 7 years. It was counting on wind power to help meet EU objectives to increase the proportion of its overall power consumption from renewable sources from 15% in 2001 to 22% by 2010 (Alexander's Gas & Oil Connections, 2003§).

Outlook

Having one of the world's most developed economies, France was an advocate for the EU and the European single-market concept. The country has had to make considerable changes in the structure of its industries, particularly those mineral industries controlled by the State. Some state-owned companies, such as Electricité de France, have taken the initiative to become leaders in their respective industries. Others have been forced to make additional adjustments under rationalization schemes proposed by either the EU or the French Government. The depletion of mineral resources and/or the cessation of subsidies for uneconomic operations have had impacts on local communities and their economies. France has the advantage of plentiful electrical power to attract industrial facilities that require skilled work forces and good access to markets in Europe. If nuclear power is phased out, then imports of oil and gas will be required to supplement power production from wind farms.

References Cited

- International Cement Review, 2003, Lafarge: International Cement Review, August, p. 18.
- Metal Bulletin, 2003a, Comilog to review viability of Boulogne: Metal Bulletin, no. 8776, May 26, p. 4.
- Metal Bulletin, 2003b, Métaleurop Nord goes into receivership: Metal Bulletin, no. 8744, January 30, p. 4.
- Metal Bulletin, 2003c, Pechiney shuts smelter: Metal Bulletin, no. 8745, February 3, p. 5.
- Oil & Gas Journal, 2003, International gas pipeline: Oil & Gas Journal, v. 101, no. 48, December 15, p. 9.

Internet References Cited

- Alcan Inc., 2004a (January 6), Alcan acquires entire interest in Aluminium Dunkerque, accessed December 8, 2004, at URL <http://www.alcan.com/web/publishing.nsf/Content/Alcan+Acquires+Entire+Interest+in+Aluminium+Dunqkerque+exec>.
- Alcan Inc., 2004b (January 8), Final results of Alcan's offer, accessed December 8, 2004, at URL <http://www.alcan.com?web/publishing.nsf/Content/Final+Results+of+Alcan's+Offer+exec>.

Alexander's Gas & Oil Connections, 2003 (December), France seeks to harness natural resources in whirl of wind farms, accessed January 16, 2004, at URL <http://www.gasandoil.com/goc/news/nte35066.htm>.

Compare Infobase Ltd., 2004, Top 10 gross domestic product (GDP) countries, accessed May 6, 2005, at URL <http://www.mapsoworld.com/world-top-ten/world-top-ten-gross-domestic-product-countries-map.html>.

Country Watch, 2004, France, Country Fact Sheet, accessed November 18, 2004, at URL <http://www.biz.yahoo.com/ifc/fr.html>.

EMC Group, 2003, MDPA–Mines de Potasse d'Alsace, accessed December 9, 2004, at URL <http://www.groupe-emc.com?Portail/UK/filiales/MDPA/UK.mdpas.html>.

Hoovers, 2003, Arcelor S.A., accessed December 8, 2004, at URL http://www.hoovers.com/arcelor/--ID__103869--/free-co-factsheet.xhtml.

International Monetary Fund, 2004 (September), France, World Economic Outlook Database, accessed November 2, 2004, at URL <http://www.imf.org/external/pubs/ft/weo/2004>.

State, The, 2003 (December), China firm and backers to build steel plant, accessed December 9, 2004, at URL http://www.baosteel.com.cn/english_n/indexe_n.html.

U.S. Commercial Service, 2004, Economic trends and outlook, accessed November 15, 2004, at URL <http://www.buyusa.gov/france/en/113.html>.

U.S. Energy Information Administration, 2004 (April), France, Country Analysis Briefs, accessed December 13, 2004, at URL <http://www.eia.doe.gov/emeu/cabs/france.html>.

World Bank Group, 2004 (September), France data profile, accessed November 2, 2004, at URL <http://www.worldbank.org/data/en/fr.html>.

Major Sources of Information

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Direction Générale de l'Énergie et des Matières Premières
 DGEMP
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Bureau de Recherches Géologiques et Minières
 BRGM
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 45060 Orleans, Cedex 2, France

TABLE 1
FRANCE: PRODUCTION OF MINERAL COMMODITIES^{1,*}

(Metric tons unless otherwise specified)

Commodity ²	1999	2000	2001	2002 ^c	2003 ^c
METALS					
Aluminum:					
Bauxite, gross weight ³ thousand tons	160	185	174 ^r	170 ^r	168
Alumina:					
Crude do.	550	500	600	600	500
Calcined do.	450	462	480	500	450
Metal:					
Primary do.	455	441	462	463 ⁴	445 ⁴
Secondary do.	239	260	253	262 ⁴	240 ⁴
Antimony, metal, including regulus ^c	500	500	500	500	500
Cadmium metal	195	160	176	63 ^{r,4}	--
Cobalt, metal:					
Powder ^c	600	600	600	500	500
Chloride	180	204	199	175 ⁴	181 ⁴
Copper: ^c					
Mine output, Cu content	100	100	--	--	--
Metal, secondary:					
Blister	1,000	1,000	500 ^r	-- ^r	--
Refined	1,800	1,500	1,500	500	--
Gold, mine output, Au content kilograms	3,570 ^c	2,632	2,510	1,724 ^{r,4}	1,470 ⁴
Iron and steel:					
Metal:					
Pig iron thousand tons	13,854	13,661	12,004	13,224 ^{r,4}	12,756 ⁴
Ferroalloys, electric furnace: ^c					
Ferromanganese do.	138 ⁴	140	130	130	130
Ferrosilicon do.	100	110	100	100	100
Silicon metal do.	65	60	65	65	65
Other do.	100	100	100	100	100
Total do.	403 ^r	410 ^r	395 ^r	395 ^r	395
Steel:					
Crude do.	20,211	21,002	19,431	20,524 ⁴	19,803 ⁴
Hot-rolled do.	17,294	17,722	16,593	18,561 ^{r,4}	18,400 ⁴
Lead:					
Smelter, secondary	205,000	209,000	132,000 ^c	105,000 ^{r,4}	-- ⁴
Refined:					
Primary	124,000 ^c	109,868	98,257	83,575 ^{r,4}	1,535 ⁴
Secondary	155,000 ^c	158,226	143,338	111,643 ^{r,4}	96,155 ⁴
Total	279,000 ^c	268,094	241,595	195,218 ^{r,4}	97,690 ⁴
Magnesium metal, including secondary ^c	16,200	16,500	4,000 ⁵	--	--
Nickel metal ⁶	9,458	10,100	11,033	11,440 ^{r,4}	11,138 ⁴
Silver: ^c					
Mine output, Ag content kilograms	1,140	720 ⁴	800	600	500
Metal, Ag content of final smelter products do.	500	500	450	400	400
Tin, secondary	1,506	1,257	1,644	1,600	1,500
Tungsten, mine output, W content of powder ^c	500	500	500	500	500
Zinc metal, including slab and secondary	331,103	347,705	343,805	338,924 ⁴	268,408 ⁴
INDUSTRIAL MINERALS					
Barite, BaSO ₃ equivalent	76,000	91,000	81,000	80,000	81,000 ⁴
Bromine, elemental ^c	8,000	7,900 ⁴	7,800	6,000	6,000
Cement, hydraulic thousand tons	19,257	20,191	19,839	20,000	20,000
Clays:					
Kaolin and kaolinitic clay (marketable) do.	330	380	375	339 ^{r,4}	323 ⁴
Refractory clay, unspecified do.	14	12	14	15	15
Diamonds, synthetic, industrial ^c thousand carats	3,600	3,600	3,600	3,600	3,600

See footnotes at end of table.

TABLE 1--Continued
FRANCE: PRODUCTION OF MINERAL COMMODITIES^{1, *}

(Metric tons unless otherwise specified)

Commodity ²		1999	2000	2001	2002 ^c	2003 ^c
INDUSTRIAL MINERALS						
Diatomite ^c	thousand tons	75	75	85	80	80
Feldspar, crude ^c	do.	638	642 ⁴	650	659 ^{r, 4}	671 ⁴
Fluorspar:						
Crude	do.	250	250	250	250	250
Marketable:						
Acid- and ceramic-grade	do.	86	85	95	95	79
Metallurgical grade	do.	20	20	20	10	10
Total	do.	106	105	115	105	89
Gypsum and anhydrite, crude ^c	do.	4,500	4,500	4,500	4,500	3,500
Kyanite, andalusite, related materials ^c	do.	70	65	65	65	65
Lime, quick and hydrated, dead-burned dolomite	do.	3,094	3,000 ^e	3,000 ^e	3,000	3,100
Mica ^c		10,000	10,000	10,000	10,000	10,000
Nitrogen, N content of ammonia	thousand tons	1,580	1,620	1,373 ^r	1,172 ^{r, 4}	1,153 ⁴
Pigments, mineral, natural, iron oxide ^c		1,500	1,500	1,000	1,000	1,000
Phosphates, Thomas slag	thousand tons	50	50	50	50	50
Potash, K ₂ O equivalent (marketable)	do.	345	321	257	139 ^{r, 4}	--
Pozzolan and lapilli ^c	do.	450	450	400	400	400
Salt:						
Rock salt	do.	100 ^e	386	596	446 ^{r, 4}	439 ⁴
Brine salt, refined	do.	1,730	1,774	1,727	1,741 ^{r, 4}	1,718 ⁴
Marine salt ^c	do.	900	1,000	1,000	1,000	1,000
Salt in solution	do.	4,057 ^r	3,956	3,774	3,620 ^{r, 4}	3,516 ⁴
Total	do.	6,787	7,116 ^r	7,097 ^r	6,807 ^{r, 4}	6,673 ⁴
Sodium compounds: ^c						
Soda ash		1,000	1,000	1,000	1,000	1,000
Sodium sulfate		120	120	120	120	120
Stone, sand and gravel: ^c						
Limestone, agricultural and industrial		11,000	12,000	12,000	12,000	12,000
Slate, roof		30	30	30	30	30
Sand and gravel:						
Industrial sands		6,500 ^e	5,359	5,062	5,179 ^{r, 4}	5,089 ⁴
Other sand, gravel, and aggregates		165,000	181,020	172,764	166,788 ^{r, 4}	160,884 ⁴
Sulfur, byproduct: ^c						
Of natural gas		600	500	550	500	450
Of petroleum		250	150	150	150	150
Of unspecified sources		250	150	150	150	100
Total		1,100	800	850	800	700
Talc:						
Crude		405,300	376,000	367,000	343,200 ^{r, 4}	345,600 ⁴
Powder ^c		300,000	300,000	300,000	300,000	300,000
MINERAL FUELS AND RELATED MATERIALS						
Asphaltic material ^c		24,000	24,000	25,000	20,000	20,000
Carbon black ^c		250,000	250,000	250,000	200,000	200,000
Coal, including briquets:						
Anthracite and bituminous	thousand tons	4,033	3,805	2,364	1,483 ^{r, 4}	1,730 ⁴
Lignite	do.	894	297	324	148 ^{r, 4}	9 ⁴
Total	do.	4,927	4,102	2,688	1,631 ^{r, 4}	1,739 ⁴
Briquets ^c	do.	163 ⁴	200	200	175	175
Coke, metallurgical	do.	5,312	5,327	5,091	4,552 ^{r, 4}	4,601 ⁴
Gas, natural, marketed	million cubic meters	2,500 ^e	1,873	1,810 ^e	1,750 ^{r, 4}	1,520 ⁴

See footnotes at end of table.

TABLE 1--Continued
FRANCE: PRODUCTION OF MINERAL COMMODITIES^{1, *}

(Metric tons unless otherwise specified)

Commodity ²	1999	2000	2001	2002 ^c	2003 ^c	
MINERAL FUELS AND RELATED MATERIALS--Continued						
Petroleum:						
Crude	thousand 42-gallon barrels	13,380	11,591	10,082	9,825 ^{r, 4}	9,150 ⁴
Refinery products:						
Liquefied petroleum gas	do.	29,012	30,937	29,000 ^c	24,360 ^{r, 4}	29,000 ⁴
Gasoline, all kinds	do.	146,855	132,107	140,000 ^c	140,000	140,000
Kerosene and jet fuel	do.	52,948	48,872	48,800 ^c	48,800	40,800 ⁴
Distillate fuel oil	do.	238,451	250,417	250,000 ^c	91,758 ^{r, 4}	97,726 ⁴
Residual fuel oil	do.	59,121	57,776	69,000 ^c	61,938 ^{r, 4}	67,266 ⁴
Other products	do.	46,872	46,179	45,000 ^c	45,000	45,000
Refinery fuel	do.	868	1,148	1,200 ^c	1,200	1,200
Total	do.	574,127	567,436	583,000 ^c	413,056 ^{r, 4}	420,992 ⁴
Uranium:						
Mine output, U content		625	318	182	14 ^r	--
Chemical concentrate, U ₃ O ₈ equivalent		424	302	156	12 ^{r, 4}	--

^cEstimated; estimated data are rounded to no more than three significant digits; may not add to total shown. ^rRevised. -- Zero.

¹Table includes data available through October 2004.

²In addition to the commodities listed, France produced germanium from domestic ores. Unfortunately, actual output is not regularly reported. France also produced large amounts of stone, but statistics on output are not available.

³Reprocessed bauxite not for metallurgical use.

⁴Reported figure.

⁵Plant closed in June 2001.

⁶Excludes secondary production from nickel/cadmium batteries.

*Revised on October 20, 2005.

TABLE 2
FRANCE: SELECTED INDICES OF PRODUCTION

(1995 = 100)

Sector	1999	2000	2001	2002	2002
General	112.3	116.3	117.6	116.4	113.7
Mining	89.8	91.3	89.5	84.5	82.1
Manufacturing	113.7	117.8	118.8	117.4	114
Electricity and gas	105.2	108.6	112.2	112.1	115.3

Source: United Nations, 2004, Monthly Bulletin of Statistics, v. LVII, no. 984, September, p. 16.

TABLE 3
FRANCE: STRUCTURE OF THE MINERAL INDUSTRY IN 2003

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina		Aluminium Pechiney (Alcan Inc., 97.95%)	Plant at Gardanne	700
Aluminum			Aluminum smelters at:	
	Do.	do.	Saint-Jean-de-Maurienne, Savoie Province	120
	Do.	do.	Nogueres, Pyrenees, Atlantiques Province	115
	Do.	do.	Lannemezan, Hautes-Pyrenees Province	63
	Do.	do.	Auzat, Ariegee Province	44
Andalusite		Denain-Anzin Minéraux Refractaire Ceramique	Glomel Mine, Brittany	75
Antimony, metal		Société Nouvelle des Mines de la Lucette	Plant at Le Genest, Mayeene Province	10
Barite		Barytine de Chaillac	Mine and plant at Chaillac, Indre Province	150
Do.		Société Industrielle du Centre	Mine at Rossigno, Indre Province	100
Cadmium	metric tons	Compagnie Royal Asturienne des Mines	Plant at D'Auby-les-Douai, Nord Province	200
Cement		Eight companies, the largest of which are:	80 plants, including:	23,233
	Do.	LaFarge S.A.	15 plants; largest at St. Pierre-la-Cour (1,160)	7,815
	Do.	Société des Ciments Français	13 plants; largest at Gargenville (1,100)	6,190
Coal		Charbonnages de France (CdF), including:		
	Do.	Centre-Midi Basin	Open pit mines in western France (closed 2001)	0
	Do.	Lorraine Basin	Underground mines in eastern France	2,500
Cobalt, metal	metric tons	Société Métallurgique le Nickel (SLN)	Plant at Sandouville, near Le Havre	600
Copper, metal		Compagnie General d'Electrolyse du Palais	Electrolytic plant at Palais-sur-Vienne	45
	Do.	Société Française d'Affinage du Cuivre	Smelter at Poissy, Yvelines	11
Diatomite		Ceca S.A.	Mines and plants at Riom-les-Montagnne and St. Bazille	100
Feldspar		Denain-Anzin Minéraux S.A.	Mine and plant at St. Chely d' Apcher	55
Ferroalloys		Comilog International S.A.	Plant at Boulogne-sur-Mer	420
	Do.	Pechiney Electrométallurgie	Plants at Bellegarde	387
	Do.	Chromeurope S.A.	Plant at Dunkerque	25
Fluorspar		Société Générale de Recherches et d'Exploitation Minière (SOGEREM)	Mines in southern France	150
Gold	kilograms	Société des Mines du Bourneix (Government)	Saint Yrieix la Perche District (closed and dismantled, 2003)	0
	Do.	do.	Mines d'Or de Salsigne (Eltin Co., 51%; Ranger Co., 18%; Peter Hambro Plc., 10%)	3,000
Gypsum		S.A. de Materiel de Construction	Mine at Taverny	1,500
Kaolin		La Source Compagnie Minière	Kaolin d'Arvor Mine, Quessoy	300
Lead, metal		Métaleurop S.A.	Plant at Noyelles Godault	165
Magnesium, metal		Péchiney Electrométallurgie	Plant at Marignac (closed 2002)	15
Natural gas	million cubic meters	Société Nationale Elf Aquitaine (SNEA)	Gasfield and plant at Lacq	20,000
Nickel, metal		Société Métallurgia le Nickel (SLN)	Plant at Sandouville	16
Nitrogen, N content of ammonia		Grande Paroisse S.A.	Plant at Grandpuits	390
Petroleum:				
Crude	barrels per day	Total S.A.	Paris Basin oilfields	1,000
Refined	do.	do.	Refineries at Gonfreville and La Mede	446,000
	Do.	Shell-Française	Refinery at Petite Couron	285,000
	Do.	do.	Refinery at Berre	270,000
	Do.	Elf Aquitaine-France	Refinery at Feyzin	120,000
	Do.	do.	Refinery at Donges	200,000
	Do.	do.	Refinery at Grandpuits	96,000
	Do.	Société Française British Petroleum (S.F.B.P.)	Refineries at Lavera	175,000
	Do.	Esso S.A.	Refineries at Fos-sur-Mer	237,000
	Do.	Mobil Oil Française	Refineries at Gravenchon	62,000
	Do.	Cie. Rhenane de Raffinage (CRR)	Refinery at Reichstett	80,000

TABLE 3--Continued
FRANCE: STRUCTURE OF THE MINERAL INDUSTRY IN 2003

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Potash, K ₂ O		Mines de Potasse d'Alsace S.A. (MDPA)	Mines at Amelie and Marie-Louise (closed)	0
Salt, rock		Compagnie des Salins du Midi et des Salines de l'Est	Varangeville Mine at Saint-Nicolas-de-Port	9,000
Steel		Arcelor S.A.	Dunkerque	7,500
Do.		do.	Fos-sur-Mer	4,200
Do.		do.	Seramange	3,000
Do.		Sollac Unimetal (Usinor Group, 100%)	Gadrange, Neuves Maisons, and Thonville	8,400
Sulfur		Société Nationale Elf Aquitaine (SNEA)	Byproduct from natural gas, Lacq plant	3,000
Talc		Talc de Luzenac S.A. (Rio Tinto Corp., 100%)	Trimouns Mine near Ariege, Pyrenees	350
Uranium, U ₃ O ₈	metric tons	Compagnie Général des Matières Nucléaires (Government)	Mines at Limousin, Vendee, and Herault	1,800
Zinc, metal		Umicore Group	Plant at Auby-les-Douai	220
Do.		Métaleurop S.A.	Plant at Noyelles Godault (closed)	110